

PHENIX

WEEKLY PLANNING

2/21/2008

Don Lynch

Run 8 Task Schedule

<u>Item</u>	<u>Start</u>	<u>Finish</u>
RPC support	On Going	On Going
CM Crane design review	2/1	2/28
Next scheduled Maint. Day?	2/27	2/27
Mu Trigger FEE Prototype II install	2/27	2/27
Complete new beampipe design	2/29	2/29
End PP run	3/12	3/12
Low energy Run	3/13	3/14
End of Run 8	3/15	5/27
Install new UPS	~3/15	~3/31
End of Run Party	4/4	4/4
Install Gas house UPS's	4/15	6/13
Install HBD	7/15	9/15

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Next Maintenance Access: Feb 27th

Install and Test Mu Trigger prototype FEE

Field fit CM access stair hardware

Evaluate cable paths for MuTrigger FEE's

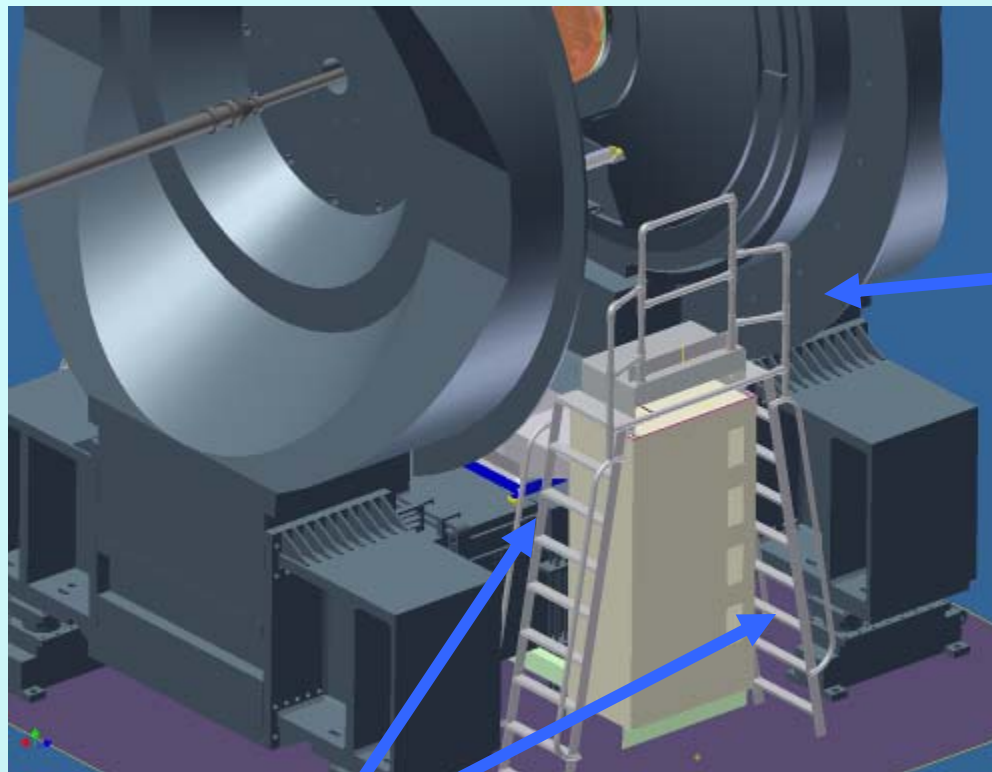
Other Tasks ?



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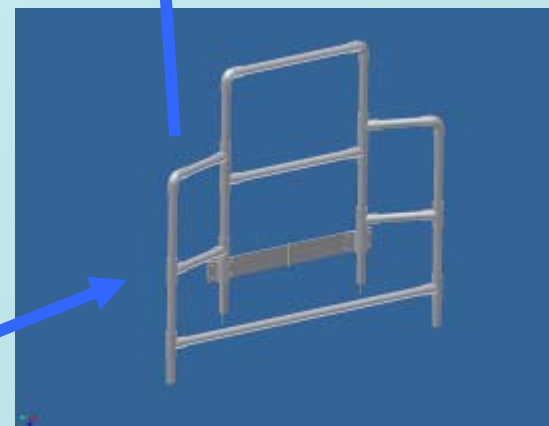
CM Ladder/Stair Shutdown Access

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Ladders done

Railing to be ready
for next access



Design Reviews

- Mu Trigger FEE Prototype (Done)
- CM Crane (analyses complete)
- MMN Scaffolding 2/22
- New Beampipe Review 3/3-3/14
- Station 1 Scaffolding 3/3 - 3/7
- RPC Prototype 3/25 (Prototype design, installation, gas system, electronics, safety)
- Mu Trigger FEE N & S 3/19
- MuTrigger N & S rack platform 4/21-5/2
- RPC Stations 1, 2 and 3 6/22-6/20
- VTX/FVTX review 8/1-8/31
- NCC Review 8/1-8/31
- MMS scaffolding 2/2/09-2/6/09

Items Needed for Design Review

March 2008: RPC prototypes and MuTrigger FEE upgrades

RPC Group:

Detailed Layouts for RPC2 & RPC3 Mechanical assembly including detailed weights, materials, dimensions of components and subassemblies.

Detailed layout for the Cu absorber

Prototype Gas system requirements including gas mixture, flow rates, pressures, pressure drops, piping requirements (quantity/lengths, materials, OD, wall thickness. Prototype gas delivery/distribution/control/safety schematic including requirements for relief valves, gauges, valves, etc. Be prepared to address all gas safety issues.

Prototype rack requirements including power, cooling water, etc. and rack component layout.

Detailed installation scheme for prototypes including list of fixtures and special tools required for installation, transportation requirements (i.e. evaluation of level of care to take in moving transporting and orienting the prototypes from the factory through installation. Also include a list of infrastructure modifications required to install the prototypes.

Detailed scheme for installing the Cu absorber for prototype including list of fixtures and special tools required for installation.

Detailed description of all electronics requirements internal to the prototype detectors, in the prototype rack, and in the rack room. Include all safety issues for all items (fusing, grounding, Recognized lab ratings, e.g. UL, etc.)

Other integration requirements, e.g. DAQ requirements

Outlines for gas system and electrical system operating procedures.

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Items Needed for Design Review

March 2008: RPC prototypes and MuTrigger FEE upgrades
Mu Trigger FEE Group:

Detailed Layouts for FEE enclosure assembly including detailed weights, materials, dimensions of components and subassemblies.

Cooling water and air requirements for FEE's including flow rates, pressures, pressure drops and temperature control requirements. Provide schematics for water and air distribution including valves, gauges, etc.

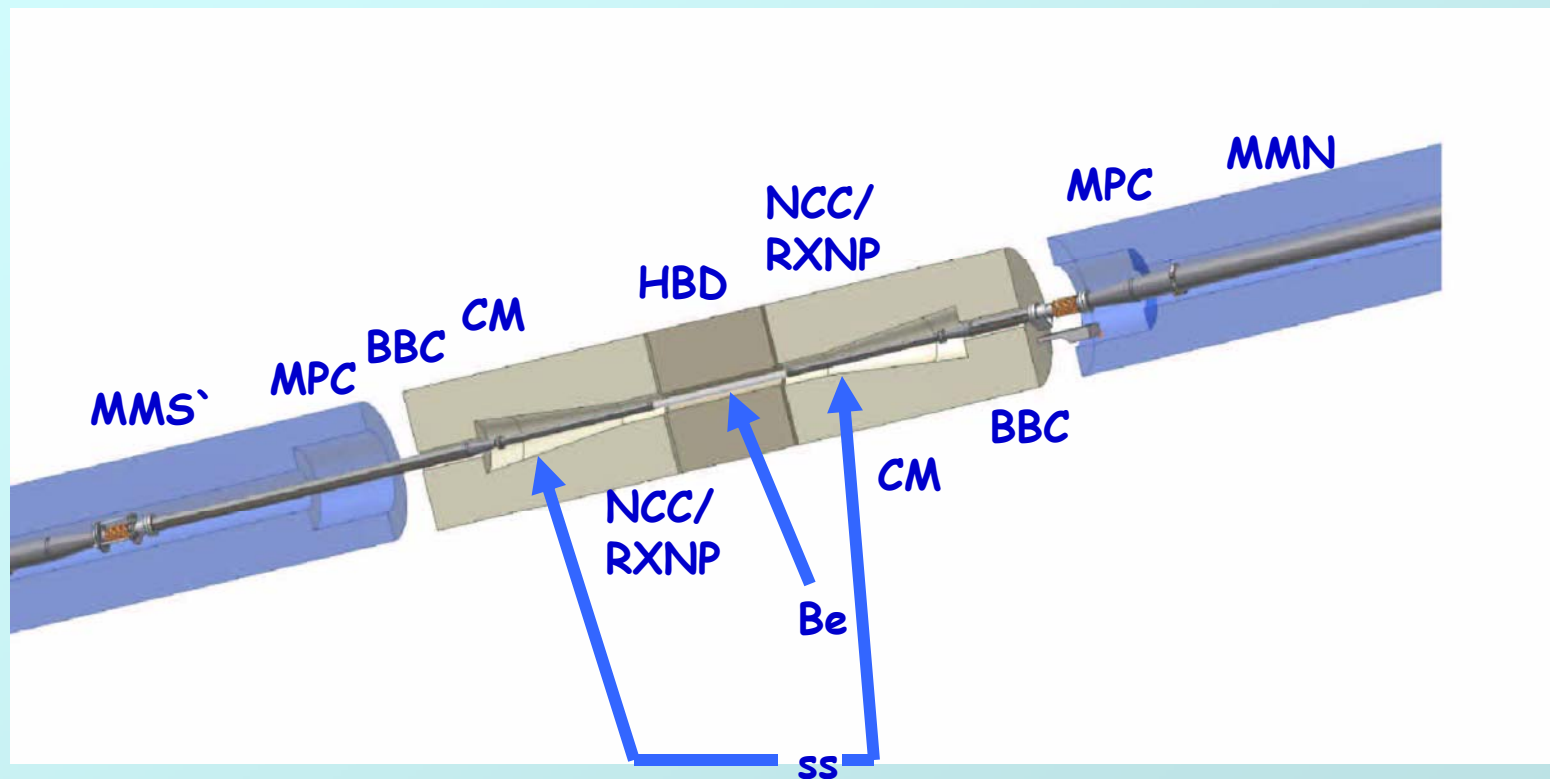
Rack requirements including power, cooling water, etc. and rack component layout.

Detailed installation scheme for FEE's including list of fixtures and special tools required for installation..

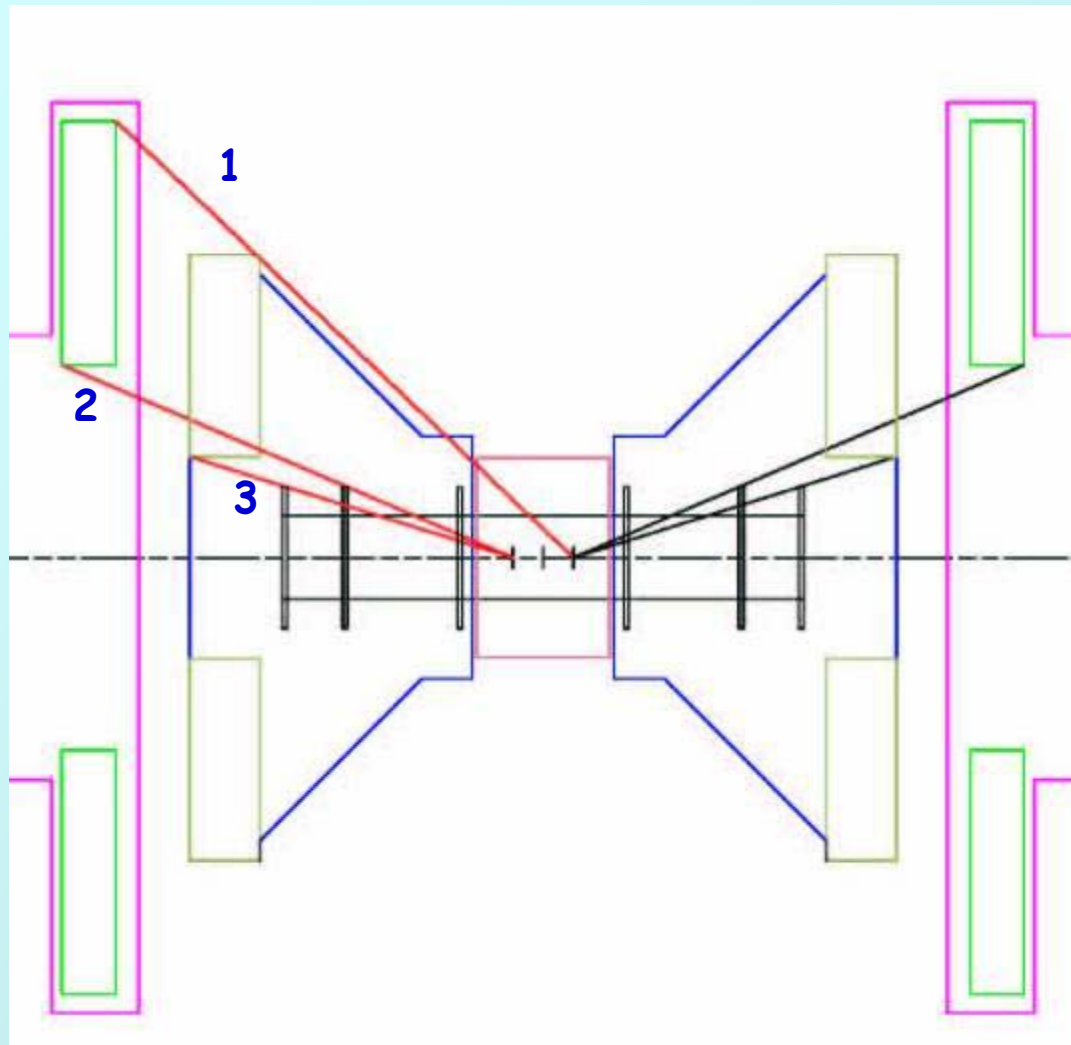
Detailed description of all electronics requirements internal to the FEE's, in the racks, and in the rack room. Include all safety issues for all items (fusing, grounding, Recognized lab ratings, e.g. UL, etc.)

Other integration requirements, e.g. DAQ requirements

New Beampipe Design & Review



New Beampipe Design & Review



Anamorphic view

Normal (run) position

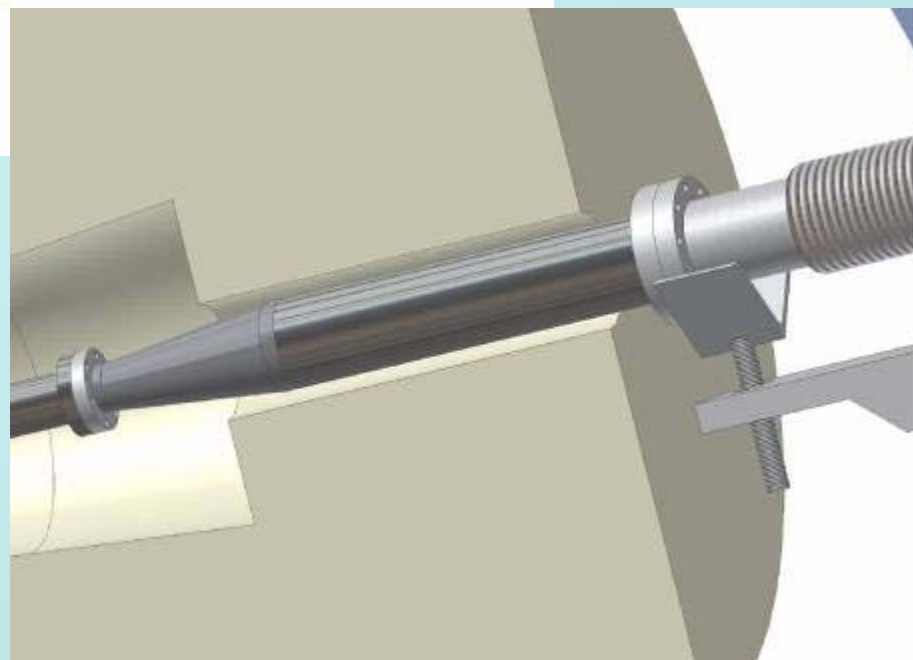
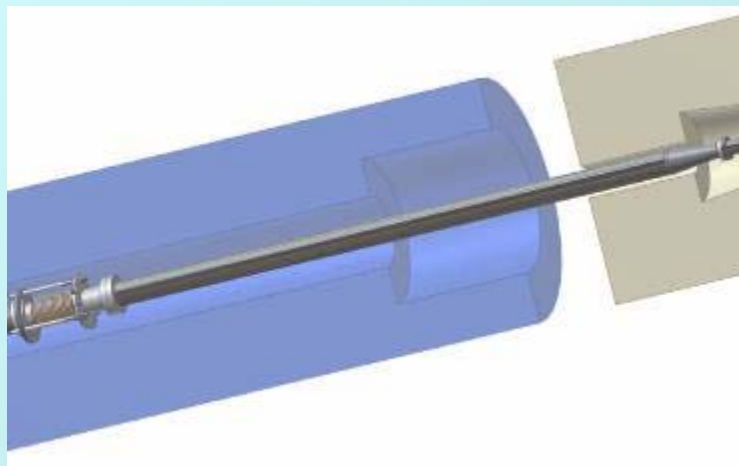
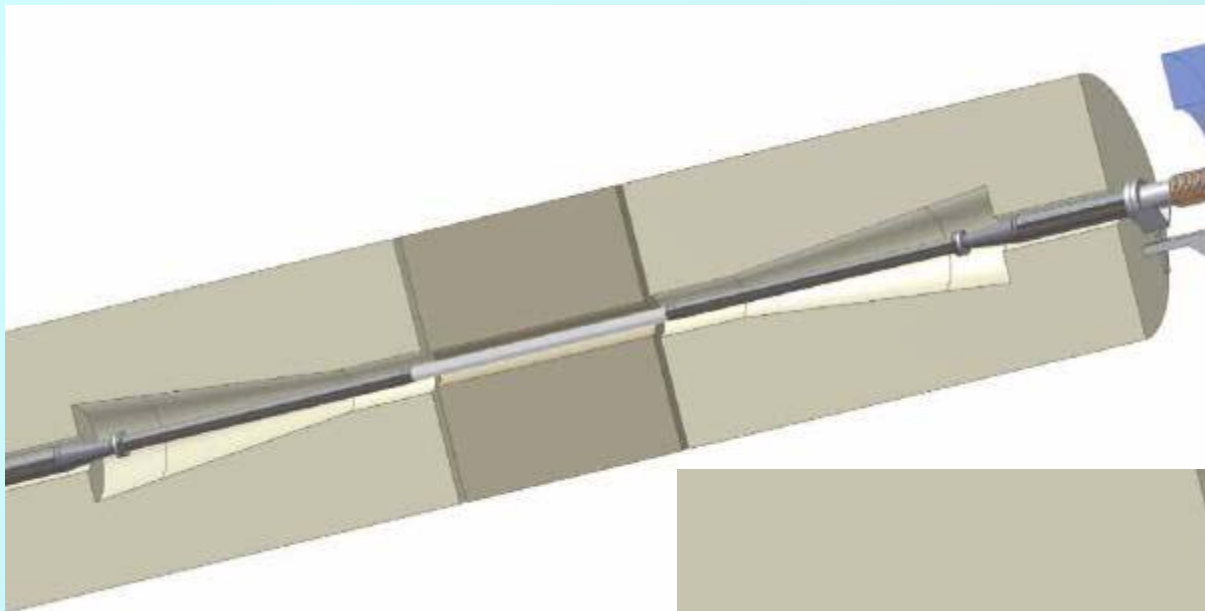
1. MPC&BBC max shadow

2. MPC no shadow

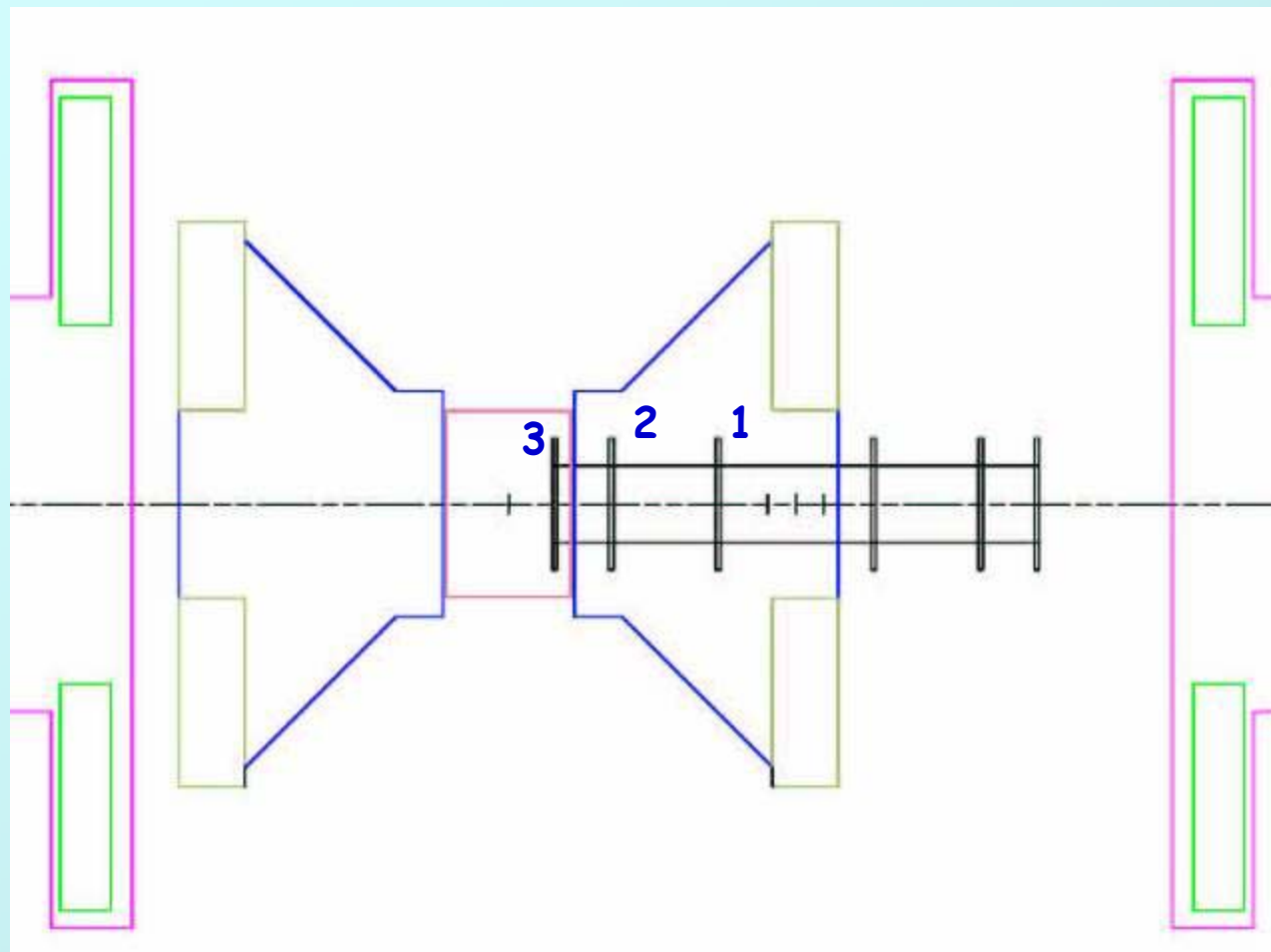
3. BBC no shadow

Issues to be resolved

TECHNICAL SUPPORT ROOM



New Beampipe Design & Review

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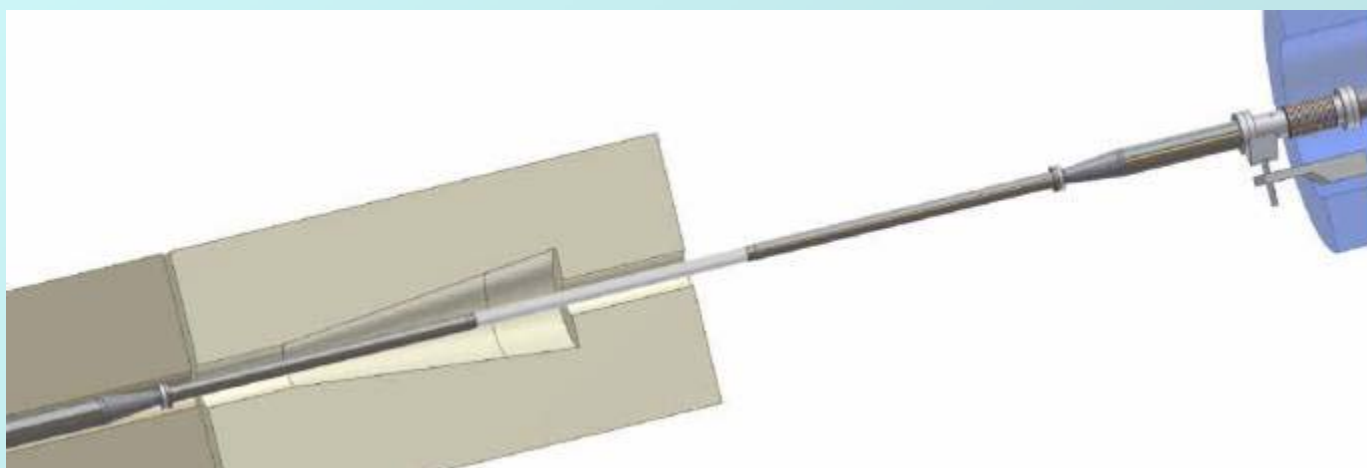
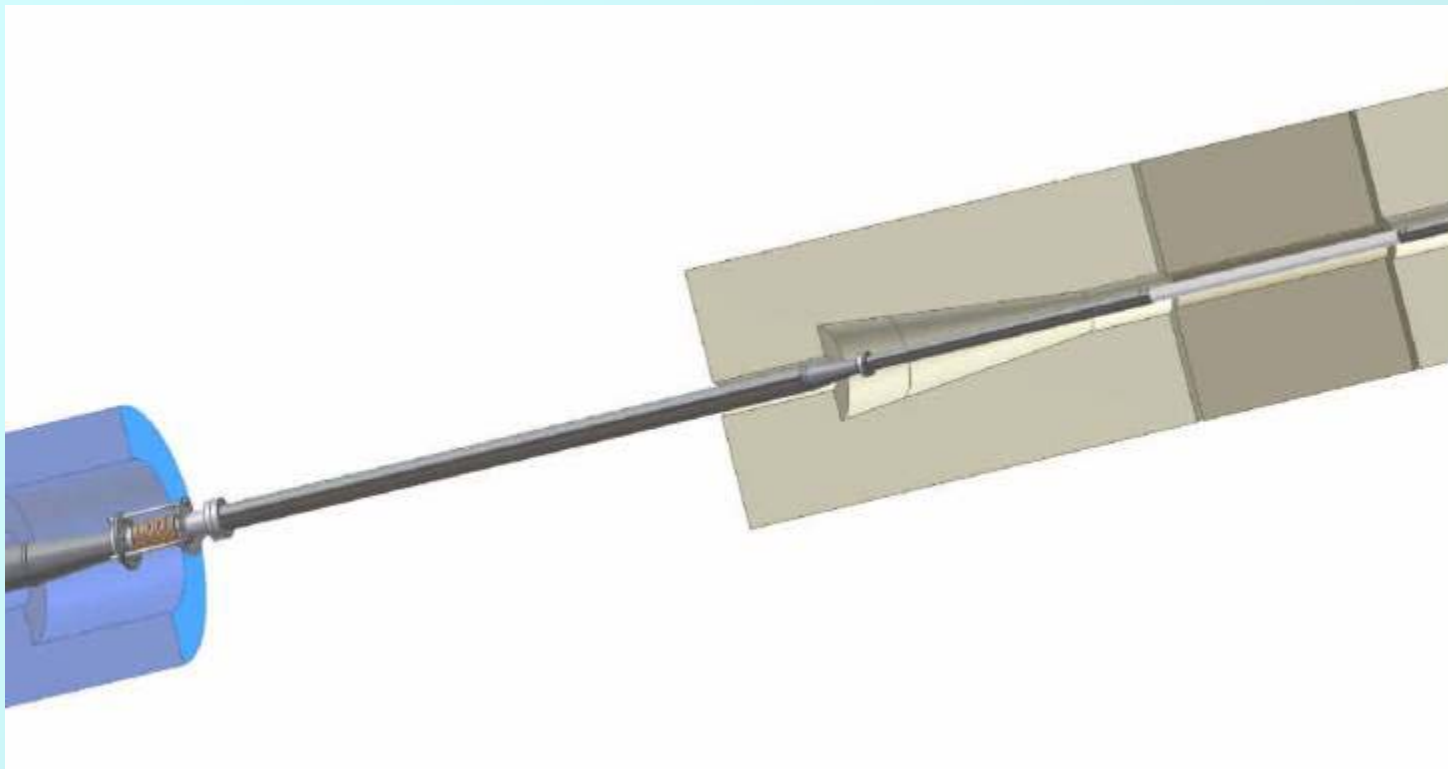
Anamorphic view

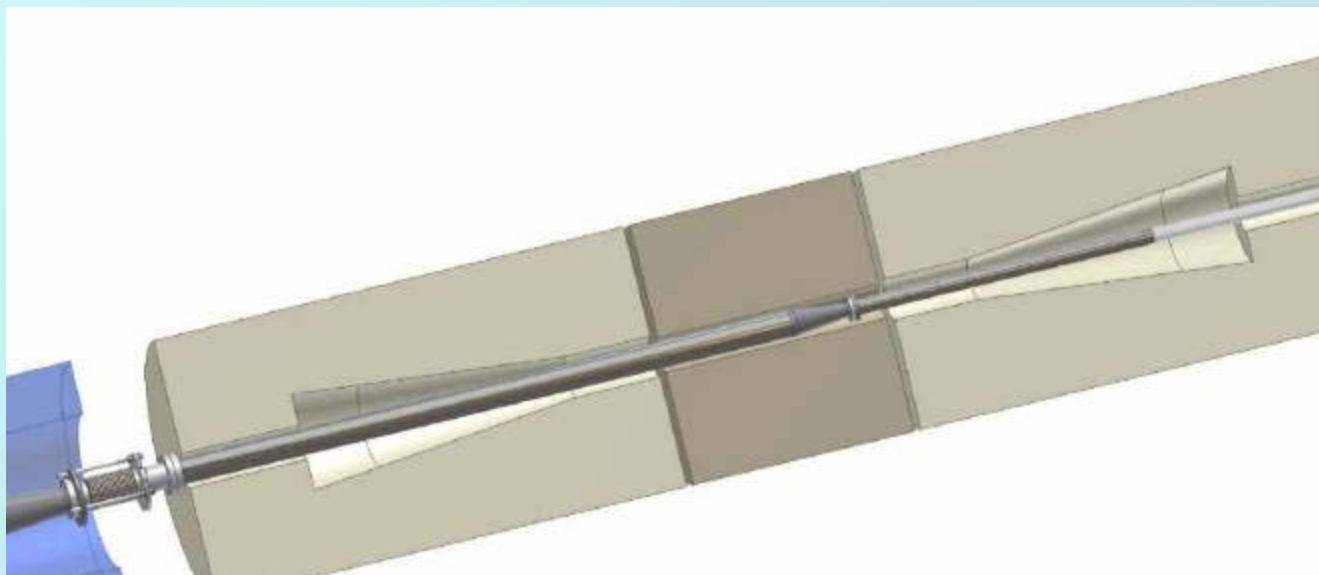
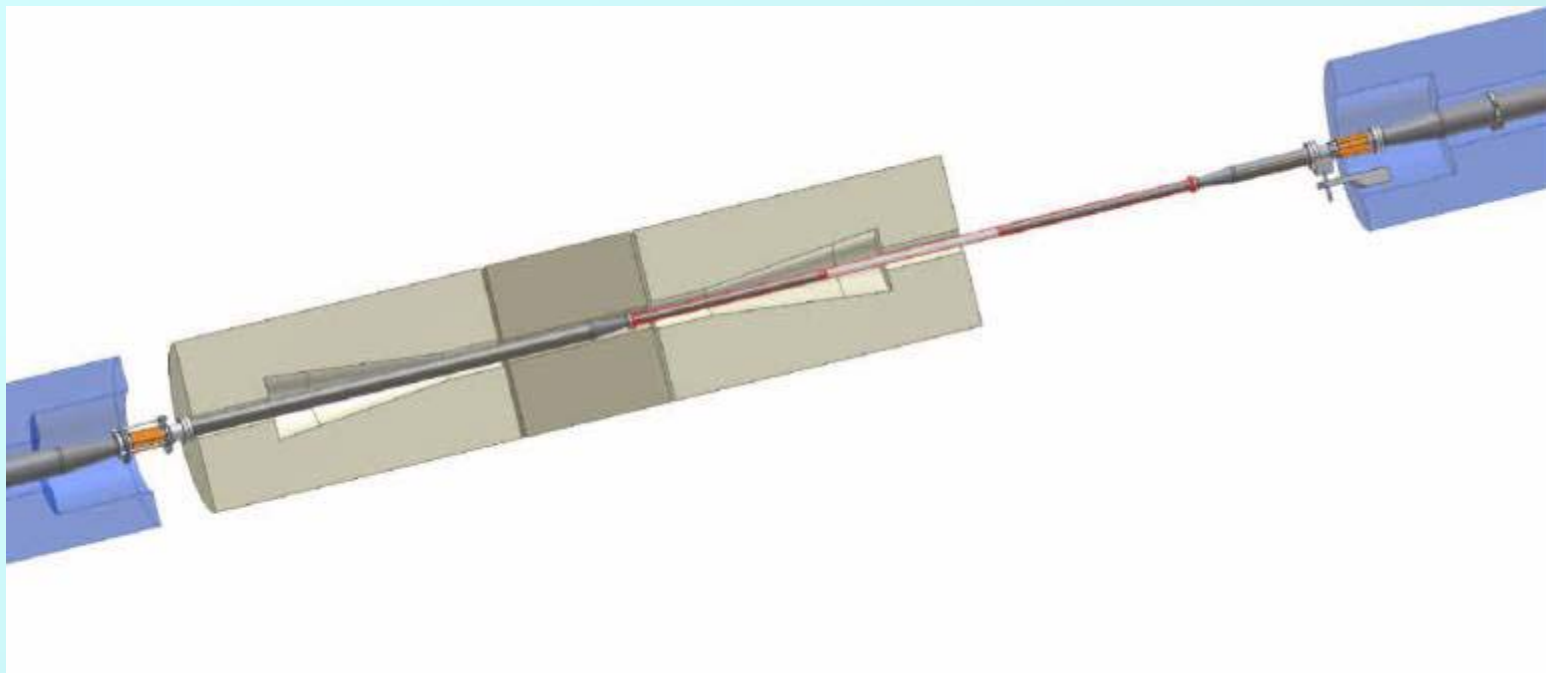
CM moved south position

1. Flange in NCC

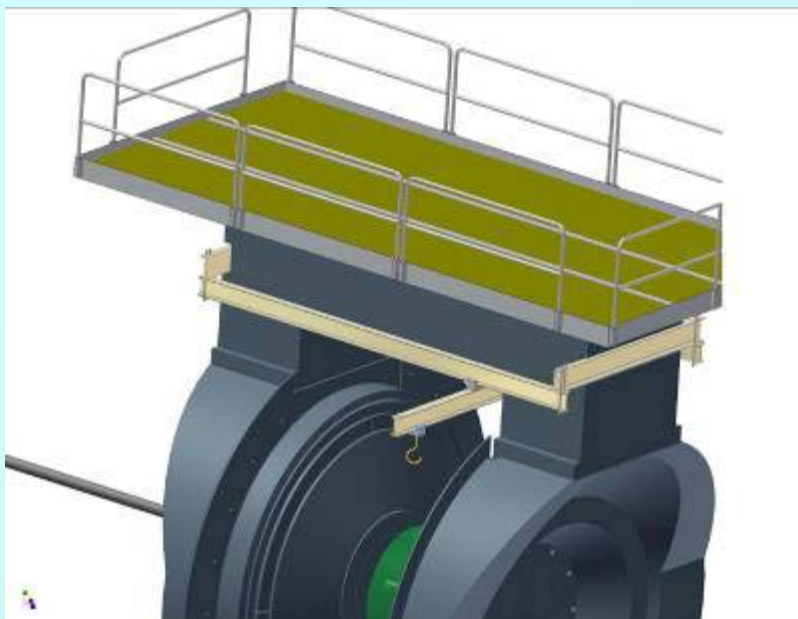
2. Flange does not shadow MPC partial shadow of BBC. Only accessible in mid-move position

3. Flange does not shadow BBC or MPC Accessible in this position





CM Crane



- Uses Gorbel 1-ton capacity Ceiling mounted Bridge Crane, modified to be supported by 2 Steel Channels attached to CM
- Bridge and hoist to be removed for running.
- Crane Design ready for review

Waiting for design review.

Tuozzolo on vacation until next Monday.

PHENIX Relativistic Heavy Ion Collider (RHIC) PHENIX Experiment
BROOKHAVEN NATIONAL LABORATORY
ENGINEERING CALCULATION

No Discontinuation
Date: 10/26/2007
Rev: 6
PAGE: 1 of 11

TITLE: Central Magnet Bridge Crane
PREPARED BY: Dan Lynch, P.E.
CHECKED BY: _____

Introduction

The PHENIX IR overhead Crane has been utilized for moving equipment and detectors too heavy or unsafely to be moved by hand in all areas of the IR. The recent addition of the "bridge" platform above the Central Magnet ("CM") limits the overhead cranes utility in the CM region. This analysis note describes the design and analysis for a newly customarily located bridge crane to service the CM region of the PHENIX detectors.

The bridge crane itself does not require a structural analysis, as it is a commercial stock bridge crane, 1-ton capacity, GORBEL, Inc. model G1CS. This is a catalog item and will be ordered with a work factor of confidence.

Analysis described herein are as follows:

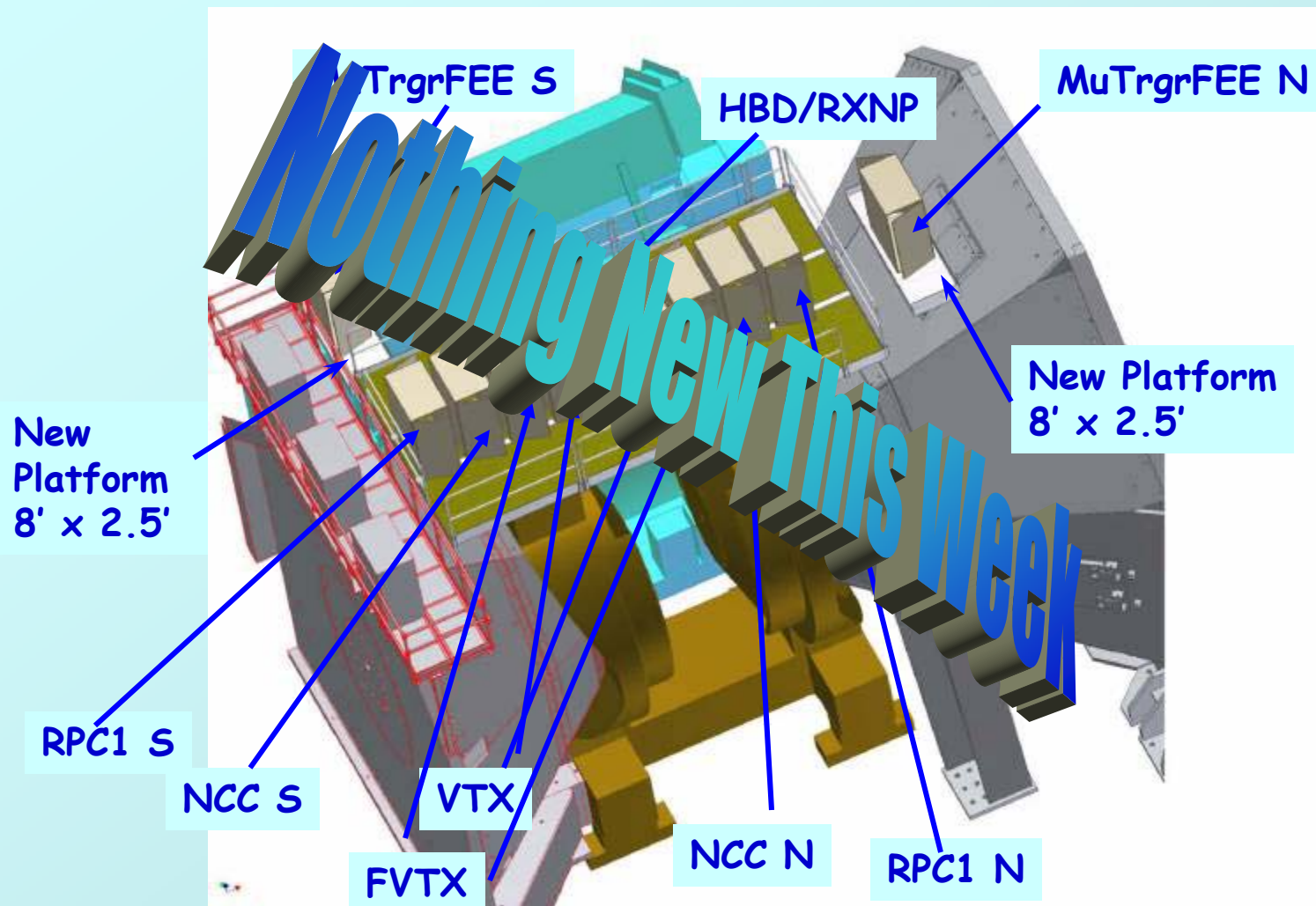
1. Dimensional analysis to demonstrate that the apparatus does not interfere with any existing features of the PHENIX detectors and/or IR equipment.
2. Structural analysis of the support channels.
3. Stability analysis of the CM under most extreme crane loading scenarios.
4. Installation analysis to demonstrate compliance of installation methodology with BNL equipment and personnel safety requirements and conformance to "best practice" philosophy.



Current PHENIX plans call for installation of the CM crane in late spring 2008.

Muon Trigger Rack Platforms

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New ADTX Board Test @ IR

Feb. 21, 2008
PHENIX Planning Meeting
Yoshinori Fukao

MuTr North, Station-2, Octant-7



x2

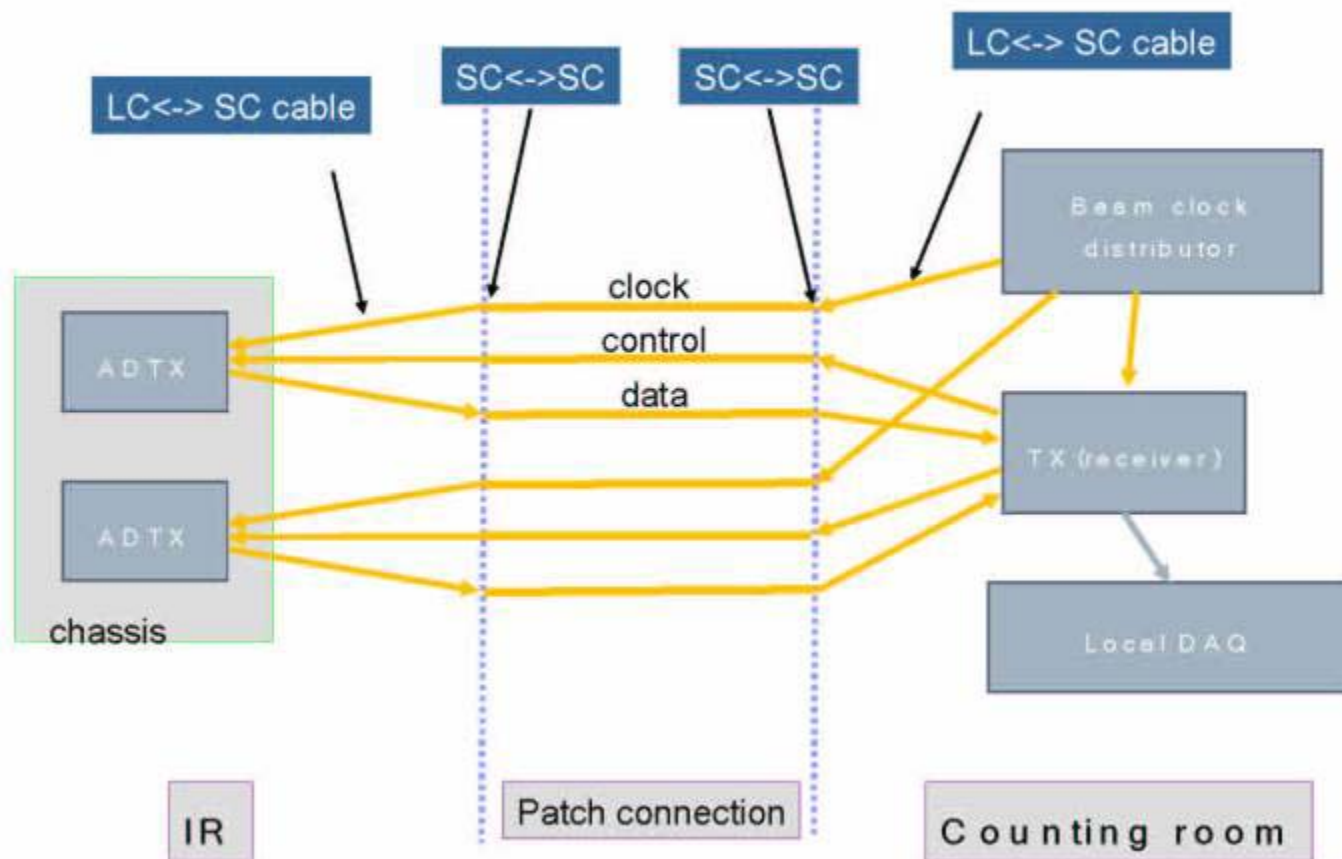
6 optical cables

1 LV cable



- MuTRG boards will be installed on the 2nd FEE from left.
- 48 strips from gap-2 and 3 each will be connected to the boards.

Setup Scheme



The diagram illustrates the cable layout for the Muon arm. It shows three main sections: IR (Infrared) on the left, Patch connection in the middle, and Counting room on the right. The Counting room contains a Beam clock distributor, TX (receiver), Local DAQ, and ADTX. The Muon arm section has two vertical dashed lines representing cable bundles. Connections are as follows:

- SC<->SC cable connects the MuID panel to the first vertical dashed line.
- SC<->SC cable connects the first vertical dashed line to the second vertical dashed line.
- SC<->SC cable + LC<-> SC cable connects the second vertical dashed line to the Beam clock distributor.
- clock control and data lines connect the first vertical dashed line to the TX (receiver).
- TX (receiver) connects to Local DAQ.
- Local DAQ connects to ADTX.
- ADTX connects back to the second vertical dashed line.

We will run 6 SC-LC cables (and 6 SC-SC cables) between MuID panel and Muon arm.

Test Schedule (Basic)

1. Check initial performance of MuTr (Noise / Gain).
2. Install cables, MuTRG–chassis, tubes for cooling.
(We will need help of technician.)
3. Install boards step by step checking noise
 - > Install boards one by one.
 - > Check PHENIX LV. (Can we replace fuse for LV?)
4. Flow cooling water
5. Examine performance of MuTr and MuTRG boards.
 - > Measure noise and gain of MuTr FEE.
 - > Measure noise on MuTRG boards.
 - > Check dependence of threshold of MuTRG.
6. Uninstall
 - > Bring out tools used for the test.
 - > (Remove all items after Run8 finished.)

Expected Time at Install

- > Hatch open (10min.)
- > Gas leak check (1/2hr)
- > MuTRG chassis mount w/o board (Jimmy, 1/2hr)
- > Water plugging w/o water flow (John T., 1hr)
- > Run optical cables. Check optical patch. (MuTRG group, 1hr)
- > Install 1st board + cabling
Data taking + noise check
(MuTRG group, 1hr)
- > Install 2nd board + cabling
Data taking + noise check
(MuTRG group, 1hr)
- > Flow cooling water (John T.)
- > Start data taking with several configuration

Items to be installed / uninstalled in IR

light + code	remove after test
ladder	remove after test
styrofoam for MuTr protection	remove after test
MuTRG ADTX board + chassis	left in IR
cables (MuTR FEE – MuTRG-ADTX)	left in IR
cables (LV)	left in IR
cables (optical)	left in IR
cooling water tubes + insert ring	left in IR

Backup Solutions for Possible Scenarios

1. Check initial performance of MuTr (Noise / Gain).
2. Install cables, MuTRG—chassis, tubes for cooling.
 - > If remote connection thru patch fails, we must bring our Local DAQ into IR.
3. Install boards step by step checking noise
 - > When noise is too large,
 - Try some grounding patterns.
 - Try reproduce summer test performance. (Install old AD+TX)
 - Use our LV module.
4. Flow cooling water
5. Examine performance of MuTr and MuTRG boards.
6. Uninstall
 - > Remove our LV module
 - > Remove one of MuTRG boards from chassis.(If problem in LV)
 - > Bring out our Local DAQ setup from IR.
 - > If some crucial problem, we may remove all items installed including boards, chassis, cooling tubes.

Optional items to be in IR

MuTRG-AD board + chassis

remove after test

MuTRG-TX board + chassis

remove after test

cables (MuTRG-AD – MuTRG-TX)

remove after test

cooling water tubes + insert ring

remove after test

vetro tape to hold chassis

remove after test

insulated sheet

remove after test

DAQ PC

remove after test

VME crate + modules

remove after test

NIM crate + modules

remove after test

LEMO cables + connector

remove after test

LV modules

remove after test

conductive tape

remove after test

table

remove after test

Old MuTRG-AD and TX boards

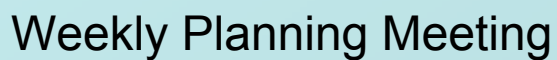


Mu Trigger FEE Cable Management

Need to know quantities, sizes and routing



2/21/2008

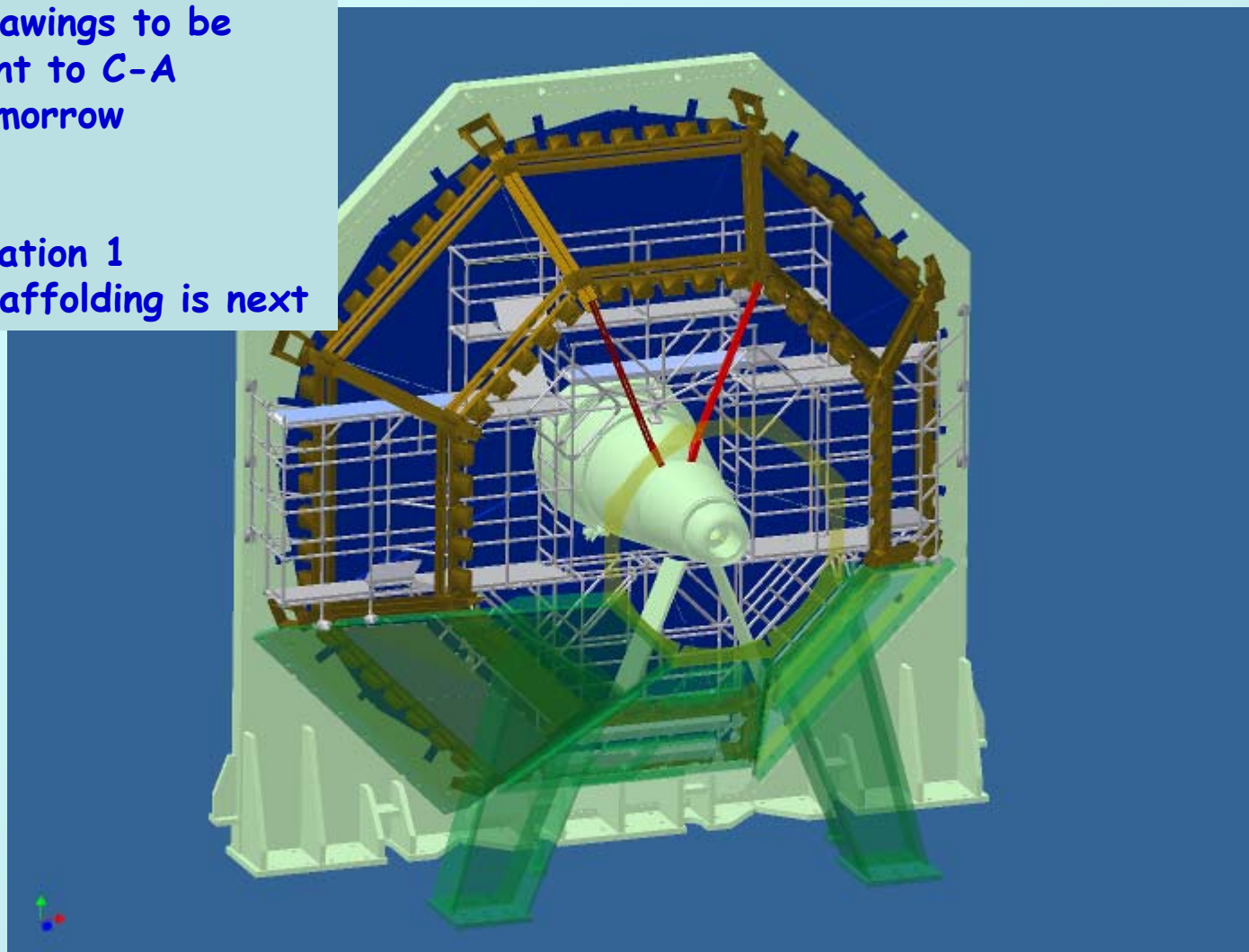


MMN Scaffolds

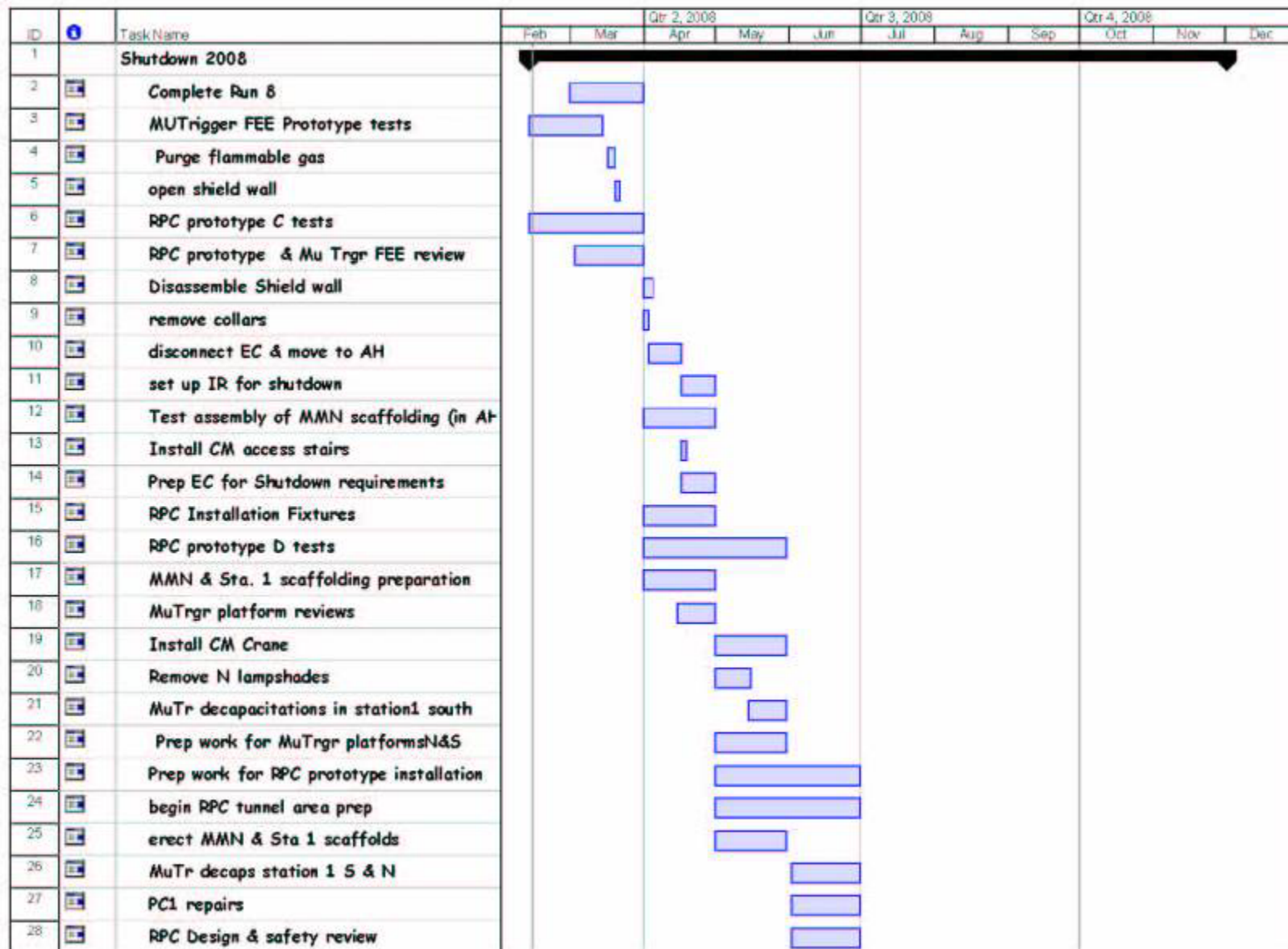
Design is complete.

Drawings to be
sent to C-A
tomorrow

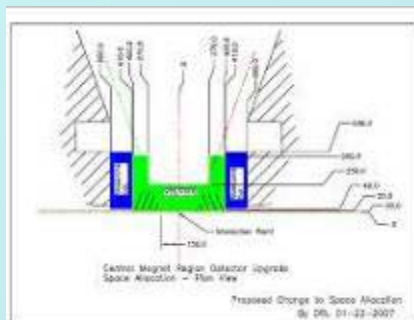
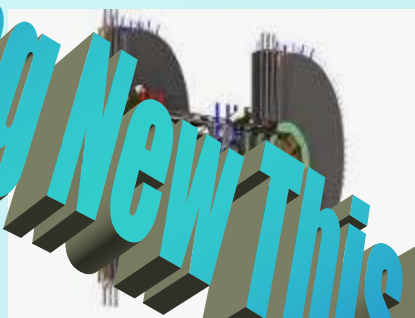
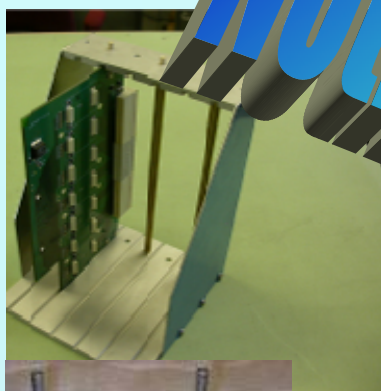
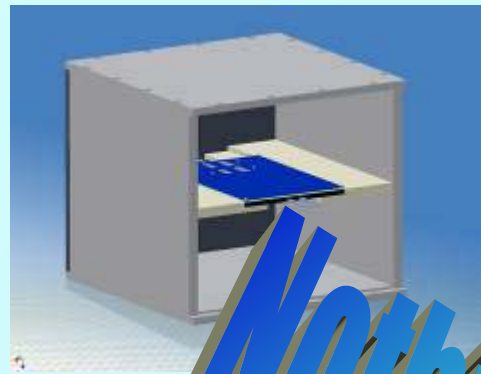
Station 1
Scaffolding is next



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ID	Task Name	Qtr 2, 2008					Qtr 3, 2008			Qtr 4, 2008		
		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
29	Re-Install HBD											
30	RPC prototype gas system											
31	Move shielding for RPC installation											
32	RPC prototype cable routing and support											
33	modify crystal palace and tunnel vapor ba											
34	fabricate RPC installation fixtures											
35	install MuTrgr N											
36	install MuTrgr N platform											
37	TBD subsystem maintenance											
38	Install RPC prototypes											
39	install Mu Trigger FEE's in MMS and MM											
40	Install N&S rack support platforms for M											
41	Install MMN cooling water and air supply											
42	TBD infrastructure work											
43	Replace tunnel shielding											
44	connect electronics/gas/water/air for RPC											
45	install Mutrgr S platform											
46	Install MuTrgr N&S racks											
47	EC into IR											
48	install collars											
49	build shield wall											
50	Prepare for run											
51	blue sheets											
52	white sheets											
53	close wall											
54	start shifts											
55	flam. Gas											
56	physics											



Other Work

- VTX, FVTX and NCC prototype support
 - Integration
 - Physical and Rack space
 - Infrastructure upgrades
- New Counting House Door
- VTX Prototype for run 8 ?

Nothing New This Week

Latest First Aid, DOE-Recordable and DART Cases

7 First Aid: 1 scraped knuckles,
1 walked into glass door/cut eyelid,
1 brushed finger against sander/abrasions
1 rushing to take conference call, slipped sprains and bruises
1 bruise by falling circuit board
1 cut using pliers to close valve
1 back pain after working on overhead fixture

2 DOE-Recordable & DART:

1 fall hit head (unspecified situation details) ambulance
1 arm numbness after moving metal cart out of storage closet

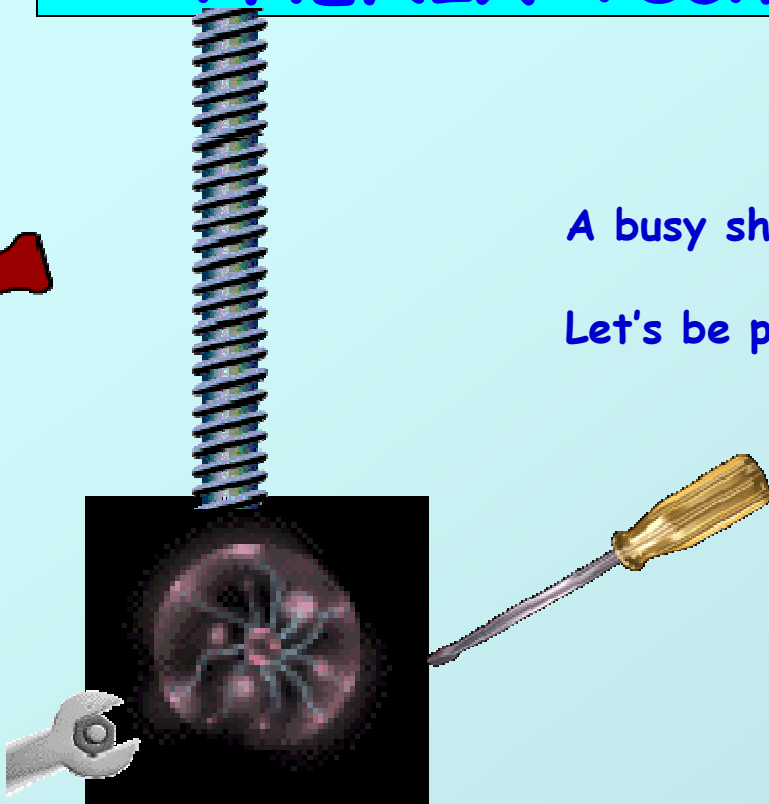
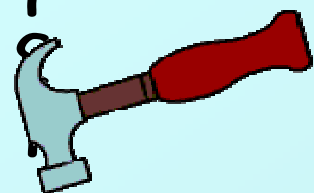
Contractor injury (not recordable/information only): Fractured hand while drilling hole-bit stuck then drill struck hand

Snow/sleet/rain tomorrow - *Be careful!*

- | | |
|------|--|
| 2008 | Install stations 1& 2 of MuTr FEE upgrades (north), 1 octant Cu absorber (S), 1 half otants each RPC2/3 S, MMN sta. 2 scaffolding, MuTr Sta 1 N&S scaffolding, 1 octant of MuTrigger FEE upgrades (south, sta 1 & 2), MuTr N stn. 1 & 3 decaps, MuTrigger rack platforms (N&S), CM crane, remove/replace beampipe, infrastructure upgrades & repairs, misc. subsystem work, 1 RPC rack in South tunnel, MuTrgr FEE N & S racks |
| 2009 | Remove HBD & RXNP, scaffolding in MMS, MuTr S stn. 1 & 3 decaps, RPC2 N, RPC3 N, north Cu absorbers, partial VTX, iFVTX, MuTrgr S sta 1 & 2, MuTrgr S rack, 2 racks in N tunnel, infrastructure upgrades & repairs, misc. subsystem work |
| 2010 | Remainder of VTX barrel, partial FVTX, south Cu absorber completed, MuTrgr FEE stn. 3 S, any remaining MuTr decaps, infrastructure upgrades & repairs, misc. subsystem work |
| 2011 | RPC1 N&S, NCC N, remainder of FVTX, DC West upgrade/repair, remove absorbers, infrastructure upgrades & repairs, misc. subsystem work |
| 2012 | NCC S, upgrades contingency & wishlist, infrastructure upgrades & repairs, misc. subsystem work, TBD new and improved upgrades |

** Years refer to the shutdown year and follow the run with the similar number (i.e. work in 2008 is to be done in the shutdown that follows run 8, and so on)*

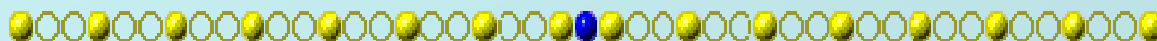
Where To Find PHENIX Technical Info

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A busy shutdown is coming

Let's be prepared.

Links for the weekly planning meeting slides, long term planning, pictures, videos and other technical info can be found on the web site:



http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm